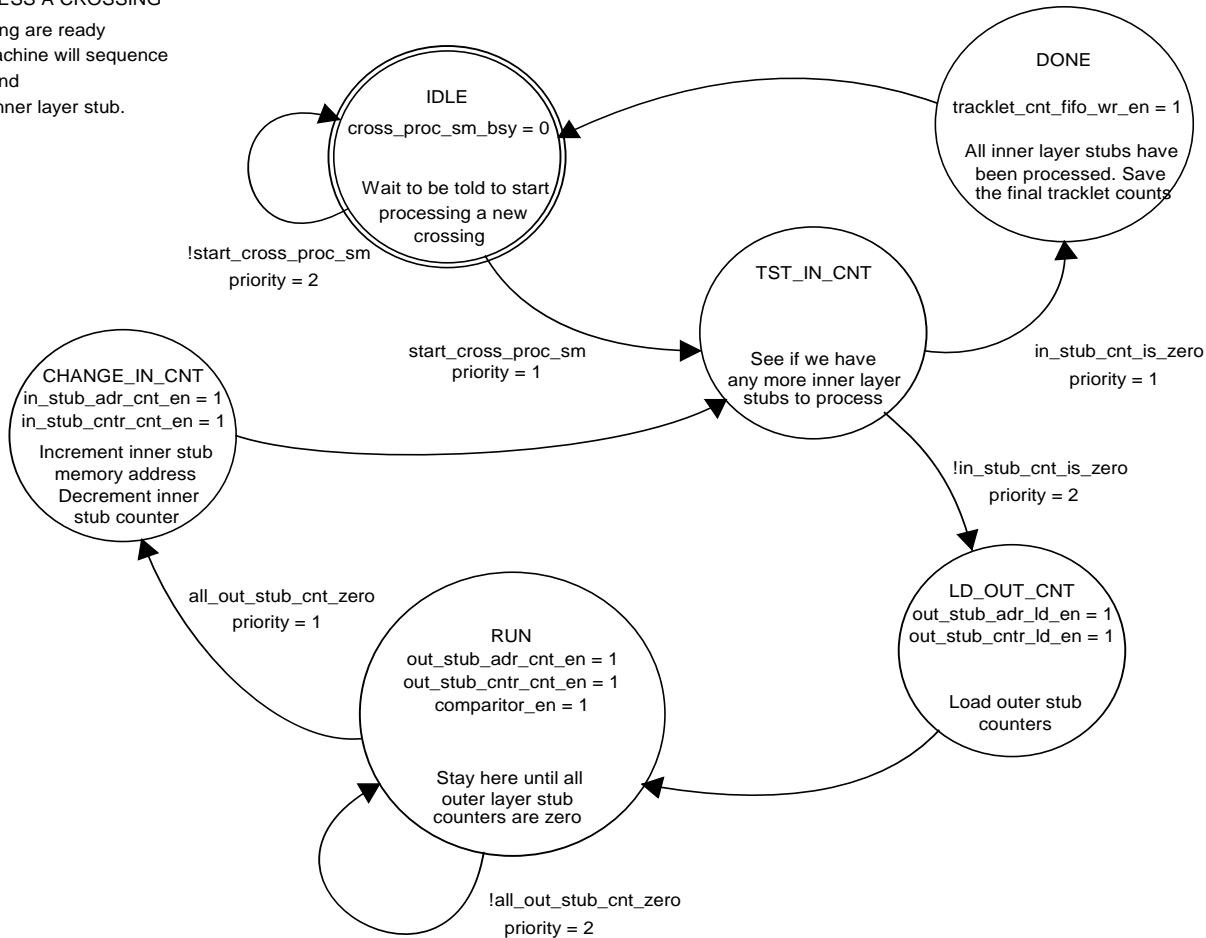


TRACKLET SEARCH - PROCESS A CROSSING

When stubs for a given crossing are ready to be processed, this state machine will sequence through all inner layer stubs and all outer layer stubs for each inner layer stub.



STATE MACHINE

|                  |                     |          |
|------------------|---------------------|----------|
| name             | TS_process_cross_sm |          |
| clock            | clk                 | posedge  |
| reset_signal     | res                 | positive |
| reset_state      | IDLE                | anyvalue |
| implied_loopback | 1                   |          |

INPUTS

|                       |  |
|-----------------------|--|
| clk                   | Pipeline clock   |
| res                   | Reset  |
| start_cross_proc_sm   | enable processing of this crossing                     |
| in_stub_cnt_is_zero   | there are no more stubs to look at for the inner layer |
| all_out_stub_cnt_zero | there are no more stubs to look at for any outer layer |

OUTPUTS

|                         |   |      |   |
|-------------------------|---|------|---|
| cross_proc_sm_bsy       | 1 | comb | busy when processing a crossing                             |
| out_stub_adr_ld_en      | 0 | comb | load the stub memory address of the first outer layer stub  |
| in_stub_adr_cnt_en      | 0 | comb | increment the stub memory address for the inner layer stubs |
| out_stub_adr_cnt_en     | 0 | comb | increment the stub memory address for the outer layer stubs |
| out_stub_cntr_ld_en     | 0 | comb | load the stub counters for the outer layer stubs            |
| in_stub_cntr_cnt_en     | 0 | comb | decrement the stub counter for the inner layer stubs        |
| out_stub_cntr_cnt_en    | 0 | comb | decrement the stub counters for the outer layer stubs       |
| comparator_en           | 0 | comb | enable possible comparisons and tracklet FIFO writing       |
| tracklet_cnt_fifo_wr_en | 0 | comb | enable writing the final tracklet count data                |

STATES

|                         |   |        |   |
|-------------------------|---|--------|---|
| cross_proc_sm_bsy       | 1 | output | busy when processing a crossing                             |
| out_stub_adr_ld_en      | 0 | output | load the stub memory address of the first outer layer stub  |
| in_stub_adr_cnt_en      | 0 | output | increment the stub memory address for the inner layer stubs |
| out_stub_adr_cnt_en     | 0 | output | increment the stub memory address for the outer layer stubs |
| out_stub_cntr_ld_en     | 0 | output | load the stub counters for the outer layer stubs            |
| in_stub_cntr_cnt_en     | 0 | output | decrement the stub counter for the inner layer stubs        |
| out_stub_cntr_cnt_en    | 0 | output | decrement the stub counters for the outer layer stubs       |
| comparator_en           | 0 | output | enable possible comparisons and tracklet FIFO writing       |
| tracklet_cnt_fifo_wr_en | 0 | output | enable writing the final tracklet count data                |

TRANSITIONS

|          |      |          |
|----------|------|----------|
| equation | 1    | def_type |
| priority | 1000 |          |